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Abandoned Farms.

AT a Farmers' Convention, held not long ago at Danbury, Connecticut, Mr. R. S. Hinman read a paper on "The Deserted Farms of New England," in the course of which he presented some novel phases of the problem which has caused so much discussion. It was admitted that there are deserted farms in Connecticut, but in the first place much of the land which has been abandoned ought never to have been cleared or tilled. As an illustration of this statement Mr. Hinman referred to one cold field facing the north-west and so full of fast rocks and bowlders that it would be hard to turn in it a straight and continuous furrow for a rod, while the scanty soil between the rocks is thin and sterile. A man now living remembers that in his youth he had planted this field with Corn on shares, and both he and the owner of the land were content with the crop and its cost; but the field has never been tilled since and will not be tilled again until men are content with wages of fifty cents a day while boarding themselves. In contrast with this, Mr. Hinman admitted that there are lands in the state which are easily tilled, readily accessible and apparently once productive, which have long been allowed to grow up to brush. In explanation of this he argues that the very fact of easy tillage and access wrought ruin to the land. The owners took crop after crop from it and returned nothing, because the process was temporarily profitable, until finally the available plant-food was exhausted. Then the cost of enriching the soil with fertilizers to the point of profitable productiveness was so great that the crops would not pay for the raising when they came in competition with those grown on cheap new western land.

But, besides rough and sterile lands and lands which have been rifled of their fertility by covetous owners, it is further admitted that thousands of acres of excellent pasture-lands have been abandoned to Hardhack and Blackberry vines, because Connecticut farmers preferred to lend their money to western competitors at eight or ten per cent. interest, rather than hire men to cut the brush and keep their farms in good heart for the future. When Connecticut passed a law allowing the registration of notes and bonds at a low rate of taxation, the farmers in one town of Litchfield County filed evidences of $60,000 loaned to western farmers. If that money had been used to improve their roads and enrich their lands these farmers might not have received ten per cent. on their savings, but they certainly would have had an investment safer than many western mortgages have since then proved. The plain statement of the case is that instead of using some of their savings to make their farms more productive, eastern farmers furnished working capital to their competitors, who naturally undersold them in their own markets and then never repaid the loans which gave them their start. Again, many an owner of a small farm found out years ago that he could make a better living in the city than at home, and although the land can be sold for a fair valuation the owner prefers to let it lie as an investment, in the hope that it will some day be worth still more, as will probably be the case if it is near a thrifty town or has some attractiveness of location.

It is to be remembered also that more people were needed to raise the same crop on the same land fifty years ago than are needed now, and that while horse-rakes, cultivators and mowing-machines take the place of men in the field, they do not need farm-houses to live in, and this accounts for the remains of a cellar and perhaps the remnant of a Lilac-bush, often seen along the roadside, to testify that here was once a home, where now there is none. These little farm-houses all over New England were once occupied by shoemakers, wheelwrights, tailors or people engaged in other home industries that are now carried on exclusively in cities and towns. This does not imply a diminishing population; it simply means that the concentration of all these mechanical industries in the villages makes fewer houses necessary on the farms. These old-time artisans could keep a cow and a horse, and by making boots or mending chairs at odd spells could live on land which would not of itself suffice to support a family. That they have left these farms simply means changed conditions, and not necessarily any deterioration in the number or general comfort of the population. And, finally, there is now and then a deserted farm-house which is fit for occupation and a deserted farm upon which a living can be made, but this is because the owner leaves it for his pleasure or his profit and does not choose to sell. Very few farms have been sold under mortgage, and where farms have been taken by foreclosure, this, according to Mr. Hinman's observation, has always been under conditions that would have produced the same result in whatever business the owner was engaged. That is, the number of farmers who fail because they conduct their business without adequate foresight, intelligence and industry is not proportionally greater than the number who fail in manufacturing, mining or commerce.

And what of the future? Very plainly the forests never should have been cut from land where nothing else will flourish. The natural suggestion, then, is that the best use to put these acres to now is to encourage a new forest growth upon them as the cheapest crop they will produce. Undoubtedly, if all the land in Connecticut that cannot be tilled with profit could be helped to reproduce its original forest cover this would not only help to furnish the needed wood-supply of the future, but it would add to the fertility of the remaining farm-lands by breaking the winds, mitigating hard-weather conditions and helping the supply of moisture. While it must be admitted that where hundreds of acres of soil have been made unproductive by careless cultivation, there must be a loss somewhere, Mr. Hinman does not consider the abandonment of many Connecticut farms a misfortune to the state. Gardens run to weeds, barns with rotting timbers and tumble-down fences, do not add to the beauty of a landscape, but whether the community will be improved by a new occupant who will restore the land to its former use depends on the character of the newcomer. No doubt, much of the land could be reclaimed—that is, if it were managed by the highest skill, it might pay men who are willing to live cheaply themselves and bring up their families cheaply. Mr. Hinman

cites examples where foreigners, every member of whose families—men, women and children—are productive workers, have taken possession of lands once abandoned. They do not need periodicals or books, because they do not read; they do not care for the conveniences that drove their predecessors into towns to get the advantages of schools and churches and libraries and social intercourse. But what do these peasant-farmers bring to the commonwealth? By cheap living and hard work they manage to undersell their neighbors. Perhaps this is an advantage to the community at large who buy farm products, but it makes harder lines for the average Connecticut farmer. Whether it pays to encourage the immigration of this class of agriculturists is certainly an open question. But Mr. Hinman finds that many abandoned farms are passing into the hands of well-to-do people who do not need to enter into the struggle as competitors of the hard-working farmer of to-day. Some of these men belong to the original stock who left the barren uplands of the state to accumulate fortunes elsewhere, and now they are attracted to the place of their birth by ties of sentiment. They relish their native air, and the old farms make summer homes for their families. And, besides this, there are many places in the state which have a quiet pastoral beauty, many others with strikingly picturesque features, and these are sought and bought for what they are, and not for the memories which cling to them. There is a tendency, too, among men of means, to get together landed estates of considerable size, not to speak of larger tracts for game preserves and experiments in forestry. Buyers of this sort will, no doubt, be welcomed, and, perhaps, they will feel that money invested in Connecticut real estate is better spent than in yacht-building or horse-racing. Even if they practice agriculture as an amusement simply, they are likely to benefit the laboring people in the neighborhood, and they are sure to make experiments with improved breeds of domestic animals and new methods of cultivation, from which observing neighbors will derive benefit. They may live on their newly bought acres only a portion of the year, but they can hardly fail to bring material aid and social improvement to the communities with which they come into contact.

No doubt, the reasons for abandoned farm lands presented by Mr. Hinman are every one of them genuine, and they account to a certain extent for the present condition of things. But, beyond and outside of them, every one must see that there is a continued and remorseless pressure upon agriculture which every eastern farmer feels. Whatever the reason may be, it is certain that the farming population throughout the middle and eastern states is stationary or actually decreasing in number, while the urban population is multiplying at a marvelous rate. The farmer, too, seems to be losing his relative rank as a social and civil factor in the commonwealth. How to prevent all this, and whether it ought to be prevented, are questions which do not come within our province. But it is in the line of our teachings to suggest that the sooner forests can be made to cover the bleak and barren hills of New England the better it will be for everybody. Few people realize how much the wood lot did to support the farmer in the old days. Years ago it was stated by a shrewd Maine man, Mr. Tom Ford, in the *Country Gentleman*, that although the New England farmer worked all summer to raise hay, oats, potatoes, corn, beef and pork he really received no fair wages for his work and laid up nothing from this source. It was the logs and bark from his wood lot, the staves and shingle stuff, the hoop-poles and cordwood that brought him all his ready money, and when his woods were cut away half his income was gone. No doubt, the best treatment of these abandoned hills, too steep and stony to till, is to help them to grow up again with Oak and Pine, for the protection and enrichment of the lands that are still worth plowing, and for furnishing a crop which the world will always need.

THE New York Commissioners of Fisheries, Game and Forests have made a preliminary report in which they urge with great reason that something be done to relieve the state from the anomalous condition in which its forestry work has been placed. New York owns a great forest preserve which it is little less than criminal to allow to go to waste. As a source of public revenue, and still more as an instructive example of what can be done under scientific management, this reservation should be put under the charge of skilled professional foresters to make it a model for our New World conditions, and be an object-lesson in forest economy for the whole country. Unfortunately, the state constitution actually forbids the use of the axe in any of "the lands of the state now owned or hereafter acquired, constituting the forest preserve." And this means that the men who made the constitution did not know that there was any such thing as rational or conservative forestry, or if they did know it, they felt that the people of this state were too ignorant to organize and develop any system of forest practice in an intelligent and scientific way, or that they were too corrupt to administer such a trust without official knavery. It is suggested in this report that inasmuch as it is proposed to purchase large additional areas of woodlands, a special appropriation might be made for acquiring some tract of virgin forest in the Adirondacks, to be set apart as an experiment station, where the practicability of carrying on scientific forestry work with profit might be demonstrated. We hardly see how this can be accomplished under the constitution, in which it is stated that this forest preserve shall be forever kept as wild forest land. Perhaps forest land purchased outside the limits of the so-called preserve might be exempted from the constitutional prohibition, and, if so, it is to be hoped that the legislature will take steps toward acquiring some woodland which can be made directly useful as a source of forest supplies, and still more valuable from an educational point of view. The Commissioners believe that with such an enterprise fully inaugurated, a forest academy, well endowed from private resources, would soon follow. If such a school could be located on the experimental grounds, where students could have an opportunity to see and practice systematic forestry, we should have the beginning of that trained corps of foresters which will be needed in the twentieth century, if we are to make the most of the forests of our state and of the forests of our national domain, and of those owned by private individuals and corporations throughout the country.

The Visalia Oaks.

ONE of the finest groves of Quercus lobata, near Visalia, is known as the Mooney Ranch Grove, on the motor line to Tulare City, and about five miles distant. It is said to cover nearly 150 acres, and the illustration on page 55 gives a very good view of it. While most of the trees are about a foot or eighteen inches in diameter, there are enough of the old giants of five and six feet in diameter to give character to the woods, for one is never out of sight of several such trees, and often finds a group of a dozen or more which seem to occupy nearly the whole field of vision.

The plant in the foreground, which seems to be a tall white flowering shrub, is really a Milkweed, as it appeared in November, when the photograph was taken. It is one of the taller species, often four or five feet high, and grows abundantly in the foot-hills and the adjacent plain, having worked down from the Sierras. It is also found along the watercourses spreading through the Oak forests. I saw it from the car-window in several places as we crossed the Visalia country, November 18th of last year, but secured no specimens. These Asclepiads and a tall, spreading, very brilliant Sunflower, under the influence of October showers, had put forth immense numbers of small, late blossoms among the dry seed-heads and along the main stalk.

I did not find time to measure any trees accurately in the Mooney Grove, but there is a small grove of about forty acres a mile from Visalia, which ought to be owned by the town, and here, within a radius of less than two hundred feet, I took the girths of five trees at six feet from the ground, and they ranged from eleven to fifteen feet, and the heights ranged from fifty-five to ninety-four feet. One of the trees, an old one, with considerable branch-room, had a broad spreading top (the top broken off). Another was tall and straight, with a trunk without a branch for twenty-five feet. The height of some of these Oaks is surprising. They seem to have grown in great thickets, in windless places, and the need of light and air forced them straight upward.

The Oaks in this little grove grow on a very heavy alluvial soil, so rich in alkaline salts that the common Alkali Grass of the plains, Distichlis maritima, is all that covers the surface. The soil, unlike that in the Mooney Grove, is unfit for farming, but the place is very attractive, covered as the surface is with this coarse Bermuda-like Grass, and so green and golden in this November season. The Oaks themselves are of many colors, though every tree on the forty acres is a Quercus lobata, for some are nearly leafless, others show yellow foliage, and still others are various shades of green. The bark also varies from smooth to very rough, and from dark brown to ashen gray. The lower branches are sometimes drooping, like those of so-called weeping-trees, but they sometimes extend nearly horizontally, though the normal type of the older trees is especially upright, as shown in the photograph of the Mooney Grove.

Niles, Calif. *Charles H. Shinn.*

Paradise Valley.

THERE have recently appeared in GARDEN AND FOREST two or three articles upon the flora of Mount Ranier, especially that part of the mountain known as Paradise Valley. It occurs to me that an enumeration of the flowers found in this wonderful little valley would be of interest, and since I spent some time in studying the botany of Ranier last summer I am pleased to undertake such an enumeration.

Paradise Valley is situated on the south flank of Ranier, at an altitude of from 5,000 to 6,000 feet; it is in a Government reservation, the Pacific Forest Reserve. The Reserve, the crowning feature of which is the great mountain, is in the Cascades of western Washington, and covers an area of thirty-six by forty-two miles. In it is, perhaps, the greatest glacier system on the continent south of Alaska. Several large rivers head in the glaciers, and between two of these, the Nisqually and Cowlitz, up among perpetual icebergs, Paradise Valley is situated.

I judge that the valley is from four to six miles long and from a half mile to two miles wide. Its outline is very irregular and its surface rough and rugged. But the interest and attractiveness of the valley lie not so much in its formation as in its covering. An alpine meadow could hardly be more beautiful. The valley is covered with a perfect carpet of flowers, excepting here and there a dash of snow, a rocky crest, or a grove of Alpine Firs and Mountain Hemlocks.

The background for the floral display is composed of two Dog-tooth Violets, Erythronium montanum and E. grandiflorum; the former is pure white, the latter with a tinge of yellow and rose. Along streams and bordering snowbanks acres of ground are literally covered with these flowers. The two species alternate in the floral design, seemingly without reason, so that we have now a spread of white, and next a cloth of gold.

In the drier parts of the valley, two Heaths, Brianthus empetriformis and Cassiope Mertensiana, form the greater part of the display. The first is a span, or a little more, in height, much branched, and has its foliage almost hidden with umbels of rose-colored campanulate flowers. The second is taller and has pure white campanulate flowers, borne singly, and nearly hidden by the leaves.

A pretty pale blue Aster, Erigeron salsuginosus, grows nearly everywhere. Potentilla gelida, a Buttercup-like flower, and fine Arnicas furnish an abundance of yellow. In the groves there are many mountain Rhododendrons, handsome shrubs, several feet high, with pure white funnel-shaped flowers. Spiræa rosea is a common shrub on the cliffs. There are several Saxifrages, three or four species of Mimulus, a common and pretty one being the little yellow Monkey-flower, M. alpinus. Orthocarpus pilosus, the flowered Painted Cup, is plentiful. A handsome Knot-weed, Polygonum bistorta, bearing a spike of pure white flowers, grows almost everywhere in the valley. Wild Heliotrope, Valeriana Sitchensis, with corymbs of fragrant pinkish flowers, is common. There is a profusion of Anemone occidentalis, the mountain Anemone, its curious feathery seed-tops reminding one of the beard of a mountain goat. Several Lilies are found. Green Hellebore, Veratrum viride, Dodecatheon crenatum, Gentiana calycosa, Pentstemon Menziesii, are all plentiful. A bright yellow Aster, Erigeron aureus, is found in the higher parts of the valley. Accompanying it are generally a lovely blue Lupine, Lupinus Lyalli, and Polemonium humile, a light blue flower with a yellow eye. On the rocks, in this almost the highest part of the valley, Spiræa cæspitosa, a silky tufted plant with an abundance of small flowers, forms a thick velvety mass that excludes all other plants. Tolmie's Saxifrage, Saxifraga Tolmiei, found a little higher up, forms similar mats. In the volcanic débris a Daisy-like purple Aster, A. pulchellus, is common. At this altitude the elements have dwarfed the Firs and Hemlocks into prostrate shrubs, with trunks greater in diameter than in height, their long, gnarled branches sprawling on the rocks. The alpine Juniper, Juniperus communis, var. Sibirica, is common here. Spraguea umbellata is one of the odd plants to be found here; its radical, fleshy, spatulate leaves rise from a thickened root, and its rose-colored flowers are borne in a dense capitate umbel of nearly sessile spikes.

Grasses and Sedges are common wherever plants can grow in the valley. There are several Ferns, an abundant pretty one being Phegopteris alpestris. Protococcus nivalis, the Red Snow-plant, forms blotches of a gory hue here and there on the snow-fields. Wood and rock are covered always with Mosses and Lichens.

Now and then there is an alpine grove of Tsuga Pattoniana, one of the handsomest of all Hemlocks, and Abies lasiocarpa, the alpine Fir. These groves are very picturesque; the drooping, dark green branches of the Hemlock bending with festoons of Lichens intermingled with the pale green foliage of the stately Firs, with now and then an Alaska Cedar, Chamæcyparis Nootkatensis, make a beautiful picture for a lover of trees.

Oregon Agricultural College, Corvallis, Or. *U. P. Hedrick.*

Foreign Correspondence.

London Letter.

DENDROBIUM BANCROFTIANUM.—This is a variety of the Australian Dendrobium speciosum, from which it differs in having thinner, shorter pseudo-bulbs, smaller leaves and shorter, looser racemes of white flowers, with a few spots of purple on the labellum. Messrs. Sander & Co., who have lately introduced it, and with whom it flowered a few weeks ago, say that it grows and flowers with much greater freedom than the type. They exhibited a plant of it last week bearing six flower-spikes, and it was awarded a botanical certificate. The type is a very old garden Orchid which grows well from year to year under ordinary treatment, but only rarely flowers. I lately saw some fine specimens of it which had been hung under a tree in the open air in July and August, and they had made exceptionally large pseudo-bulbs. When bearing its long fox-

brush-like spikes of fragrant flowers it is an attractive Orchid, and, indeed, it is worth a place in collections if only on account of its large pseudo-bulbs and fleshy leaves. D. Bancroftianum is also from Australia.

Mormodes ladium.—This is a new species, recently flowered in the collection of the Hon. Walter Rothschild, Tring, and named by Mr. Rolfe. It is very near Mormodes igneum of Lindley, figured in Lemaire's *Jardin Fl.*, iv., 330, the scape being erect, a foot long, bearing about a dozen large flowers, the sepals and petals colored dark red, the lip paler and yellowish brown. A variety, also flowered at Tring and named luteum, was shown last week and obtained an award of merit. It differs from the type in having bright yellow flowers. The two were introduced together from Peru. All the Mormodes are handsome-flowered Orchids, and were it not for the fact of their behaving badly under cultivation they would rank with the best of garden Orchids. M. luxatum, M. Ocanæ, M. pardinum and M. Colossus are introduced from time to time, and for the first year or so afterward are features of English collections, soon, however, to disappear. We grow them along with their cousins, the Catasetums.

Odontoglossum crispum Stevensi.—Baron Schroëder has, under this name, a plant which is generally considered to be the handsomest of the many select varieties of Odontoglossum crispum, and he exhibited it last week in finer condition than has ever been seen before. The spike was a yard long, gracefully arched, and it bore fourteen flowers, each five inches across, white, heavily blotched with reddish brown, the lip with a very large blotch in front of the crest. The size of the flowers and the richness of the markings are its most striking features. The plant has been in the famous Dell collection since 1886. The keen competition for the possession of these uncommon forms of Odontoglossum was exemplified at the auction rooms this week, when Messrs. Sander & Co. obtained for a supposed hybrid, O. crispum × luteopurpureum, the sum of 105 guineas. The flowers of this plant were three inches in diameter, yellow, with blotches of chestnut brown.

Oncidium splendidum is a most useful winter-flowering Orchid. It requires warm greenhouse treatment and plenty of sunlight to develop fully its broad pseudo-bulbs, thick, fleshy leaves and tall spikes of yellow and brown flowers. These last are in fine condition now. It is difficult to understand those botanists who insist on calling this plant a variety of O. tigrinum, also flowering with us now. There is some resemblance in the size and color of the flowers of the two, but in the form of the labellum, the size of the basal lobes, as well as in the character of the spike, there is a wide difference. Then, again, O. tigrinum is deliciously fragrant, while O. splendidum has no odor. In the characters of pseudo-bulb and leaf there is a marked difference between these two plants, O. tigrinum having thick, smooth pseudo-bulbs, with two, three or four comparatively thin, curved, shining green, acuminate leaves, while in O. splendidum the pseudo-bulbs are flattish, rugose, and each bears only one oblong, blunt leaf, which is very thick, erect, and becomes purplish with age. Another important difference is that while O. tigrinum is easy to grow and keep in health for an indefinite time O. splendidum soon wears out under artificial treatment. These differences have been spoken of as "no more than what might have been brought about by local environment," an argument which might be used with much greater reason against many species and even some genera.

Bulbophyllum Dayanum.—Although this plant has been in cultivation since 1865, when it was named by Reichenbach in compliment to that eminent amateur Orchid grower, the late Mr. John Day, it is rarely flowered. A plant of it was shown in flower last week from the collection of the Hon. Walter Rothschild, Tring, where Bulbophyllums of all kinds are grown exceptionally well. B. Dayanum belongs to the small, compact-growing set, the pseudo-bulbs being crowded on thin creeping rhizomes, roundish, smooth, about an inch in diameter and of a dark red-purple color. The leaves are three to four inches long, elliptic, green above, reddish beneath. The flowers are clustered and borne singly on short petioles; they are each an inch in diameter, the sepals broadly ovate, green, with purple streaks and fringed with long hairs; the petals smaller, colored red and yellow; the lip trigonous, green, with ridges of blood-red on the disk. It is a native of Tenasserim. There is a figure of it in *The Botanical Magazine*, t. 6119. An example of it has been in the Kew collection many years.

Orchid Farming.—An interesting paper is published in the Bulletin of the Botanical Department, Jamaica, for November, 1896, by Mr. R. Thomson, formerly Superintendent of the Botanical Department, Jamaica, recommending the naturalization of Odontoglossum crispum in the Blue Mountains of Jamaica, with the view of supplying the now enormous demand for this Orchid which, through various causes, is being rapidly exterminated from its home in the Colombian Andes. He proposes that groups or colonies of this Orchid should be established at intervals of a mile or so in the forest where they would seed, and "in the course of ten years scores of thousands of plants would be naturalized and fit for export annually." Mr. Thomson points out that about twenty-five per cent of the plants of this Odontoglossum exported from Colombia perish in transit to Europe, owing to the long distance from the collecting grounds to the port, a difficulty which would not be experienced in Jamaica. O. crispum is certainly by far the most popular of all garden Orchids. Mr. Thomson estimates the annual export of plants to Europe at not less than 100,000 for the last twenty years. He also says that "this year several great Orchid growers have requisitioned 250,000 plants." Fifteen years ago this Orchid was obtainable in the Pacho district, the home of the best forms, for a couple of dollars a hundred, when a peon collected as many as 200 a day. Now he collects about ten a day, and consequently the price to him has increased tenfold. In a state of nature, seeds of this Orchid are produced in vast abundance, and being very light and chaff-like are disseminated by millions. Mr. Thomson's suggestion is well worthy of consideration, not only in relation to Odontoglossum crispum, but also to many Orchids which are in great demand in Europe, but which are difficult to get from their native countries. With few exceptions, the multiplication of Orchids by the usual methods of seeds, cuttings or division is practically impossible. It would, therefore, be worth while to apply the experiment recommended by Mr. Thomson in the case of various Orchids and in different countries. At present we do not even know whether varieties of Orchids come true from seeds. Such rarities as O. crispum, var. Stevensi, O. Pescatorei Veitchii, Cypripedium Stonei platytænium and C. Fairreanum would be excellent plants to start with.

London. *W. Watson.*

Cultural Department.

Notes on Cherries.

About ten years ago several varieties of Cherries, chiefly European importations, were received from Professor J. L. Budd, of Ames, Iowa, and planted on the experimental grounds here. Most of the trees have fruited for a number of years, but very little has been published concerning their behavior in this climate. The soil on which they were grown is a heavy sandy loam underlaid with gravel.

As would naturally be supposed, the trees are all perfectly hardy, and have made a good growth. Of nineteen varieties which fruited during the past season only a few possess any superiority to our older cultivated varieties which would warrant a more extended trial. The greater portion of them are in no way better than the old Early Richmond. The following notes were taken during the fruiting season, and are given here for the benefit of those who may wish to plant some of these varieties.

Brusseler Braune makes a larger tree than Early Richmond, and has shown itself to be a heavy bearer. The fruit is large and nearly black when fully ripe; stem two inches long; flesh

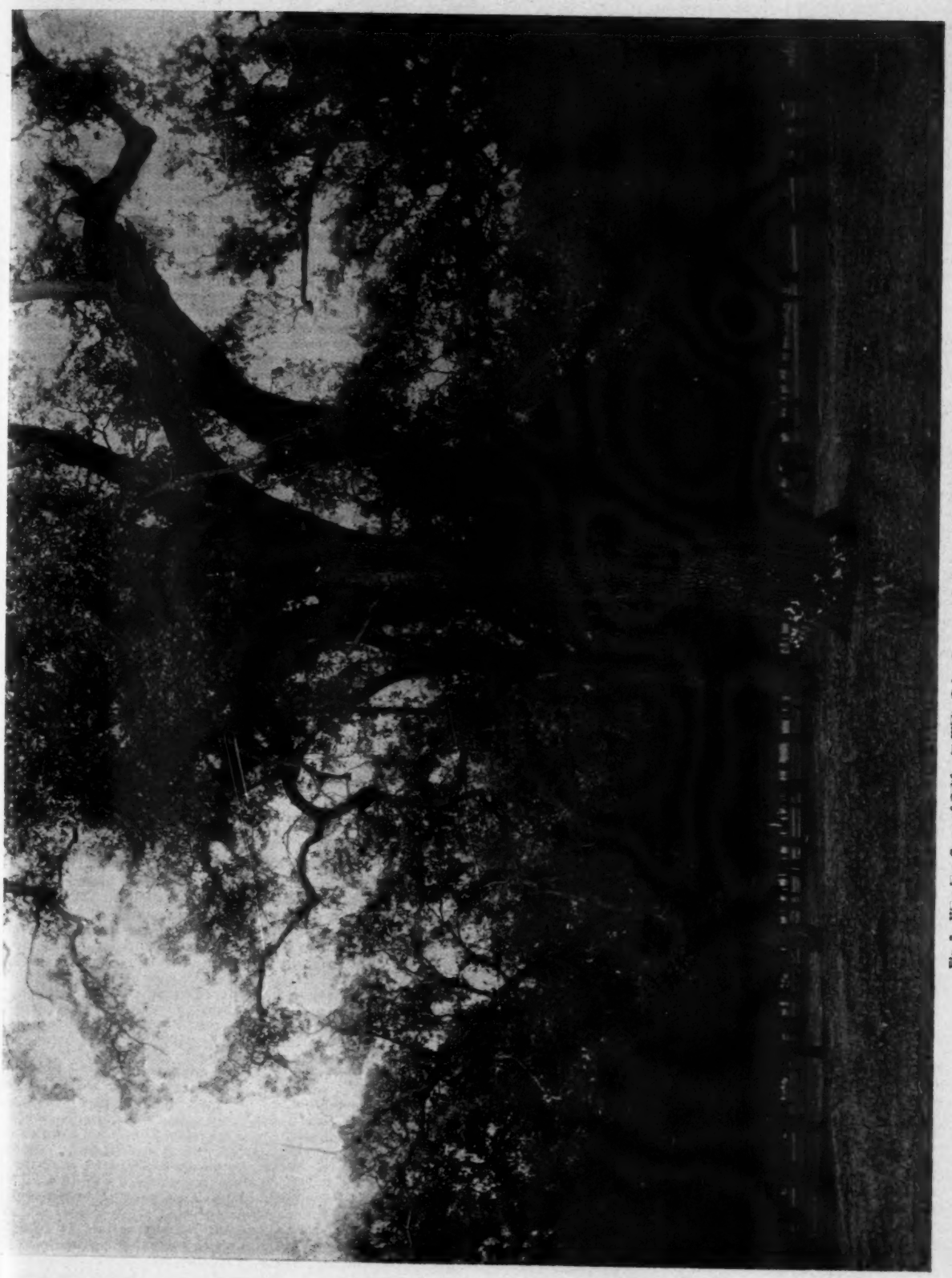

Fig. 8.—View in a Grove of California White Oaks, Quercus lobata, near Visalia, California.—See page 56.

firm, juicy and of fine quality; juice highly colored. It ripens about June 25th in this latitude, and is one of the most promising varieties in the list. Montmorency probably stands next, with its large, bright red, showy fruit. In productiveness it equals the Early Richmond, but ripens ten days to two weeks later.

Lutorka is a large, bright red cherry with a deep suture, with firm flesh and of good quality, ripening about June 10th. This variety has received favorable comments from growers in the east as promising. So far, with us, it has been a very shy bearer; otherwise it would be recommended for general planting. Griotte du Nord is a good tree, with fine foliage. The fruit is large, almost black when fully ripe; stem two inches in length. It resembles the Brusseler Braune in general appearance, but ripens a little earlier.

Dye House has been spoken of very highly in some localities, but with us it is only medium; no better than many others. French Morello is a large, dark red cherry of good quality and quite productive, ripening about June 25th. Montmorency Extraordinary is of medium size, bright red, good quality, short-stemmed, and ripening June 10th. Frühe Morello is a large, bright red fruit, of fine quality, short-stemmed, quite productive, and ripening June 8th. Späte Morello is a good bearer; fruit medium in size, dark in color when fully ripe. The skin is tough, making it a good shipping variety; ripens June 25th. Wragg makes a low-spreading tree, with fruit of medium size, dark red and of very good quality when fully ripe; ripens June 25th. Weirs No. 2, inferior and not recommended for this locality. Bessarabian would be a fine variety if it were more productive, but thus far it has produced very sparingly. The fruit is large, dark red and of good quality, and ripens about June 20th. Cerise de Ostheim is a round-topped tree, the branches somewhat pendulous in growth. It seems to be one of the best varieties of its class that we have fruited. The fruit is medium in size, of a dark color when fully ripe; flesh firm and tender, juicy and rich, and the tree yields a heavy crop every year. Frauendorfer is a strong-growing tree, with large dark red fruit, tender and juicy. As yet it has not been prolific enough to warrant us in recommending it for general cultivation. Carnation is a sweet cherry of great promise. The fruit is very large, bright red, rich and meaty. It ripens about June 8th, and is a most excellent variety for family use.

La Fayette, Ind. *J. Troop.*

Greenhouse Notes.

WHAT may be called the busy greenhouse season is now at hand. In the Palm-house the principal work is cleaning and sponging, preparatory to repotting, and in the Orchid-house potting is the work in order, while in the propagating-house the benches will soon be taxed to their utmost capacity. We usually commence propagating with Crotons, Dracænas and similar greenhouse subjects to give them as long a season as possible. The main trouble in the cultivation of Dracænas is what is commonly known as club-root. This makes its appearance very quickly if the plants are allowed to become stunted in growth, either from the soil becoming sour through an oversupply of water or insufficient drainage, or from excessive dryness. There is no cure for this, so far as I know. When it appears, cuttings should be made of the top and stem and the old diseased root be destroyed.

Rose cuttings should be struck before the sun's ray's become too strong, as it is then possible to supply a genial bottom-heat and at the same time keep the atmosphere of the house comparatively cool. The sand must be fresh and clean and kept well moistened until the cuttings have rooted. We prefer thumb-pots for the first potting; the smaller the pot the less is the danger from overwatering before the roots have sufficient strength to use the moisture. A light sandy soil is best for this potting, but for subsequent pottings it should be moderately enriched with dried and finely sifted cow-manure that has been well frozen.

Carnations may be struck, either in a hot bed or under comparatively cool treatment. We prefer the latter system, for, though it takes longer, better and healthier plants are produced. The hot-bed method rushes the plants into weakly growth from which it takes them considerable time to recover, even if they are removed to cooler quarters after being struck. The first of March is quite soon enough to put in cuttings of bedding plants such as Coleus, Alternanthera, Strobilanthes, etc., unless the stock of any of these is short or extra-large plants are desired. By allowing the stock-plants all the possible light and air now, stout, firm growth will be promoted and the striking will be much easier when the time arrives for it.

Cyclamens still continue to bloom freely. This season, instead of using leaf-mold and sand as heretofore, for the last shift in September, we substituted a liberal addition of turfy loam for one lot. The experiment was altogether satisfactory, and we mean to grow all in this way in the future. The growth is more compact, the leaves firmer in texture, the flowers stronger and more durable, while the quantity is slightly increased. The young plants from seed sown in October are now ready for a second handling. Frequent shiftings while the plants are young promote compact growth and also prevent the leaf-mold becoming sour or cloggy. As it is hard to regulate the moisture in soil of this nature, the house in which they are grown is run at a night temperature of fifty degrees, a rise of fifteen degrees being allowed by sun-heat. A light sprinkling is given two or three times daily during bright weather. The old plants intended for seeding purposes are kept apart from the others on a shelf well up to the light, and these are labeled in distinct colors so they shall not be mixed. We usually do some hand pollination with a view to strengthening some of the weaker growers or to impart brightness of color to those lacking in that respect. As there is danger from damping during the seeding period an oversupply of moisture must be carefully guarded against.

Cinerarias are now well established in their flowering-pots, and free growth is promoted by frequent applications of weak liquid-manure. The points of the leading shoots were removed before the flower-buds began to show. We consider this operation of considerable importance, as it induces branching and gives a larger and better-balanced plant.

Last year we set plants of Calla out in the garden after they had finished flowering, about the beginning of June, and lifted them again in the fall. They commenced to flower rather earlier than usual under the drying-off system, but otherwise there was no marked advantage. It is a mistake to grow them under too high a temperature, and forty-five degrees by night is quite high enough; at this temperature the flowers will be much stronger and more durable than if grown in more heat, while the plants are less subject to the ravages of insect pests, such as greenfly and thrips. Frequent syringing will help to keep these in check, but if the latter pest gets a footing the leaves must be sponged with a moderately strong solution of whale-oil soap or other insecticide. Smock will destroy the fly, but must not be given too strong; rather make the applications more frequently. These plants are strong feeders, and stand a liberal supply of liquid-manure.

Ferns grown from spores sown in November are now ready for pricking over, and will make nice, useful, little plants for filling small vases by May. Another sowing should be made during the early spring to come in later, as the first lot grow too large for the smallest vases. We use varieties of the Pteris family principally, these being the most durable, but a few Adiantums are also useful. The old plants of the latter should be potted on before the young growth is too far advanced, and Davallias and other rhizomatous sorts should be divided if it is desired to increase the stock by this means.

Tarrytown, N. Y. *William Scott.*

Flowers in January.

GREENHOUSE plants toward the end of January have a look of vigor due to the increasing sunlight. The change in the plants is mostly shown in the production of shoots and leaves rather than of flowers. There are not many blossoms except of bulbous plants which thrive in the dark, short mid-winter days, and after about ten weeks of abundant flowering these will continue for, perhaps, a fortnight longer, when a month or two is devoted to the ripening of their bulbs preparatory to a long rest. I still have one much belated flower of Dahlia imperialis, a noble species, whose natural blooming time is the end of November. The plant is a fine greenhouse shrub, with the drawback of too tall growth. Its habit is to run up ten or twelve feet, and then form a head of foliage from every axil of which the flower-stalks shoot, each bearing from one to three blush-white flowers; in form these are more like a Lily than a Dahlia, and from four to six inches across. An Italian firm of seed growers state that they have some seminal varieties of this species which are of earlier bloom and dwarfer growth; if their hopes are realized we shall some time have a race of Lily Dahlias for garden decoration. The ordinary kinds are subject to red spider when grown under glass, but this is quite free from the pest.

Lachenalias are mostly past. L. Nelsoni, a fine hybrid with a stem a foot high thickly hung with waxy deep yellow bells an inch and a half long, is now in full beauty. This is one of the best in my collection, but it sometimes bears green-yellow flowers. L. isopetala, which commonly is the latest to flower, is just beginning to blossom. While not showy, it is quite

pretty with its thickly clustered violet-colored buds and small straw-colored flowers. The procession always begins with L. quadricolor, known also as versicolor and as superba, followed closely by L. pendula, the largest and finest of all. About twenty kinds are obtainable, and all, I think, are worth growing.

Oxalis of many kinds continue to flower. O. Bowiei, the largest and best species, has been blooming steadily since October, as has O. cerima, which I should rank next to Bowiei. This species has been introduced into Malta and has become a nuisance in cultivated land, and I read only yesterday that our little American O. violacea has become an intolerable pest in some parts of Ceylon. Many of the varieties of O. purpurea are now flowering. The flowers are purple, lilac, rose, pink, flesh-colored or white, and are frequently two and a half inches in diameter, but there is only one to the stalk. O. gigantea of some catalogues is really O. purpurea laxula. The stalks of the leaves and flowers are bright crimson, adding much to the beauty of the plant. Of the flabellate-leaved kinds, O. crispa, with its deep yellow flowers, and O. leperina, with white ones, are still beautiful, while O. spectabilis is just beginning to throw its clusters of dark crimson blossoms up through the masses of deep green leaves.

Hemerocallis fulva is not often seen in winter. Under glass it has a more refined look than out-of-doors, but it does not, of course, warrant the space it occupies. I took in a pot of H. fulva two years ago to hasten it for crossing with H. flava. I succeeded, and forgot to throw it out again. It has just finished flowering.

Ferraria strata is beginning to open its curious and attractive flowers; so are Veltheimia viridifolia and Dendrobium nobile, and Phajus grandifolius is pushing up its stout flower-stalks. One of the most uncommon plants now in bloom is Ceratotheca triloba, a perennial plant from south Africa. It grows in the greenhouse to a height of about two feet and produces spikes of hanging and thickly set flowers, shaped somewhat like those of the Foxglove, but with the lowest lobe prolonged in a triangular or trowel-like shape. These are produced at various seasons; they are pink, marked with darker lines, and are about three inches long. I have tried the plant in the open ground in summer, but it grew so rampantly that fall approached before it was ready to blossom. Tritonias are just beginning to flower. Nankin is always the first seedling variety of T. crocata; this fine large flower is of a creamy white color, tinged on the edges with red. Babianas have little beauty, Sparaxis produce but few flowers, Ixias are hard to manage under glass, but Tritonias are the most satisfactory of the smaller Cape bulbs for greenhouse use.

In speaking of January flowers, the hybrid Streptocarpus must not be forgotten, though they are always in bloom. So far I have raised no seedlings which do not fall under one of two descriptions: white, with lines of purple, rose or crimson; mauve, with lines or blotches of violet. This is no great range of color, but they are more distinct than many of the hybrid Cypripediums which have received varietal names.

Canton, Mass. *W. E. Endicott.*

Sowing Flower Seeds.

IT is not always easy to discover the real cause when there is failure in seed-sowing, and the seedsmen are often blamed when really the cultivator is at fault. Special conditions are necessary for successful germination, and must be maintained during the period intervening from sowing-time. The first thing to consider is whether the seeds are of tropical, semi-tropical or hardy plants, and in this our seedsmen should be able to help us. Seeds of tropical plants require a temperature of at least eighty degrees, Fahrenheit, and moist surroundings. For semi-tropical plants sixty degrees is suitable. A lower temperature will answer for many hardy plants; but the degree of hardiness varies as does the vegetating point, and some grow at a temperature scarcely above freezing. When Siberian Squills and Glory of the Snow break through the ground in early spring, thousands of seedlings appear almost at the same time. The effect of temperature on germination is well illustrated by two of our worst weeds, Chickweed, a native of temperate regions, and Purslane, a tropical plant. We have Chickweed from the opening of spring until the middle of June, when Purslane begins to appear and is our worst pest. After the first frost kills the Purslane, Chickweed again becomes troublesome. The shadiest and coolest place must be selected for Cinerarias, Calceolarias and Primulas if these are sown in summer-time, and then only moderate success may follow, whereas, if the sowing is done in February or March, or in September or October, the result is likely to be altogether satisfactory, because the conditions of heat and moisture can then be made favorable to their nature.

Whether we start our seeds in a cold frame, a hot-bed or a greenhouse, depends on the facilities at hand. A hot-bed may be started now, but a cold frame cannot be brought into successful use until the beginning of April. If I had a greenhouse I would commence seed-sowing now, for, in addition to all tender plants raised for summer display, many hardy annuals and some perennials will germinate as well indoors and have better attention, with the result of earlier flowers. Some hardy perennials require a long time to germinate, and often a whole year will elapse before the seeds come up. Whenever this happens we know from experience that it is better to sow in autumn, and winter the seed boxes in cold frames. Seeds that are slow in vegetating should be sown as soon as they are ripe, or during the autumn. It is probable none will germinate until spring-time. If such seeds were held for spring sowing, few, if any, would come up until autumn, and some would remain dormant for another year. This has happened with Barberries, Clematis, Rhodotypus kerrioides, Pæonies, Hellebores and Dictamnus.

A light, sifted soil, with charcoal dust added, is suitable for nearly all seeds, certainly of all terrestrial plants. Shallow boxes are preferable. We use the shiftings for drainage, and then fill up the boxes to within half an inch of the top with the prepared soil, which is made moderately firm and smooth. Drills are marked out with the edge of a label, and the depth of the drills is varied according to the size of the seeds. Very fine seeds need no drill and may be scattered along the surface. A shaking will generally sufficiently cover them, and the surface should again be pressed smooth. With the exception of very coarse seeds, I do not practice overhead watering, preferring the subirrigation plan of immersing the boxes to the edge and letting in the water from below. Less frequent wetting is thus required and most seedlings will be up before a second application is necessary. There are several ways of disposing of the seed boxes until germination takes place. When space has been limited I have put the boxes away in tiers, so arranged that the bottom of one tier did not rest upon the top of the other—that is, set up so that air could freely pass over the soil. The seeds germinated as well as when the boxes have been spread over more space. By this plan only the top box needs shading, and less watering is required. As soon as germination takes place I expose the young plants to light and air. At this stage they require very careful watering, otherwise they would all quickly damp off. The seedlings should be transplanted as soon as they are large enough to handle.

Among the most useful plants for a summer's display are those which furnish cut flowers. We like to have these as forward as possible. Among these we group Stocks, Asters, Coreopsis Drummondii, Phlox Drummondii, Angelonia grandiflora, Salvia Blue Beard, Indian Pinks, Gaillardias, Senecio Jacobœa, Scabious, Rocket Larkspurs, Zinnias, Verbenas, Chrysanthemum carinatum, var. Burridgeanum, and small Sunflowers. All these we shall sow at once in intermediate temperature. Another group, also more or less tender, will include plants useful for the borders or for bedding, such as Antirrhinums, Pentstemons, Petunias, Begonia semperflorens Vernon, Salvia splendens, Browallias, Celosias, Balsams and Poppies. If time and space permit it we may sow some hardy perennials in a cool greenhouse. We shall, however, be likely only to try a few novelties or rarities in this way and leave the bulk of the hardy varieties for the cold frame. A good selection of perennials should include some of the fine hybrid Delphiniums, particularly D. formosum, var. cœlestinum, Iris Kæmpferi, Oriental Poppies, Campanula grandiflora, hybrid Phlox, Pæonies (these are slow of germination), Mertensia Virginica, Lupinus polyphyllus, Trollius Europæus and T. Asiaticus, Pyrethrum rosea, Heuchera sanguinea, Dictamnus Fraxinella, Sweet Williams, Lobelia cardinalis and some of the new hybrids of L. fulgens, Hollyhocks, Foxgloves, Asphodels, perennial Sunflowers, species of Asters, Alyssum saxatile, Thermopsis Caroliniana, Baptisia australis, Hemerocallis Thunbergii and Coreopsis grandiflora.

Wellesley, Mass. *T. D. Hatfield.*

Notes from Baden-Baden.

Iris Histrio.—Owing to the mildness of the season this Iris opened its first flowers by the end of November, and buds are still coming on, prolonging the flowering time to the end of January. It is a native of Mount Lebanon and belongs to the reticulata group, having the largest flowers of this tribe. The body-color of the flowers is bright ultramarine, the three blades having only a colored rim; the middle parts are white,

with blotches of deep ultramarine and a yellow crest. Blue flowers are rare about this time of year, and its fresh color makes it very welcome. It is not quite hardy, and must be either potted or cultivated in a frame, but it well deserves such extra care. Its near ally, I. histrioides, is quite hardy, but it does not make its appearance before the middle or end of February, and its flowers are smaller.

A new Colchicum from Persia is showing bud and will be out as soon as we get a few bright days. Although its white and pink flowers are small they are borne in great numbers, and on account of their earliness this Colchicum will be a welcome addition to spring-flowering bulbous plants. I have been fortunate in securing a small importation of the rare and beautiful Scilla Messeniaca, which is to flower in March and on which I will report later.

Baden-Baden. *Max Leichtlin.*

Correspondence.

Evergreens in Winter.

To the Editor of Garden and Forest:

Sir,—Evergreens and shrubs that retain their berries until spring are now the leading attraction of the winter garden. The conifers used to form shrubberies for effect in the dark season should be those that retain a healthy appearance of their foliage throughout the winter. The foliage of many evergreens burns and browns under the varying conditions of sun and storm, freezing and thawing, to which they are subjected at this trying time. For a number of years I have taken note of many Pines, Spruces, Retinosporas, Arbor Vitæs and Hemlocks, and I have been much struck by the variety of appearance the different species and varieties assume at this season. In this climate the Arbor Vitæs and Retinosporas give less satisfaction than do some other conifers, as they look dull and rusty even in mild winters, and are only beautiful during the season of growth. Such conifers are not as well adapted for winter gardens as the Spruces, Hemlocks and Pines. Strangely enough our native Pines do not compare favorably with those of foreign origin in this regard. In my little pinetum it is the American Pines whose foliage discolors in winter. The common White Pine, Pinus Strobus, for instance, has a way of folding its needles together as if it were preparing for a long winter's sleep, and all its foliage assumes a dull olive-gray tint, in striking contrast to the wide-awake aspect and sprightly green of some of its foreign neighbors. Pinus excelsa, the Lofty Bhotan Pine, one of the most beautiful of its class, is very effective in the winter landscape here, and is almost as bright a green now as in the summer. The same may be said of P. Thunbergii, from Japan, and of the Swiss Stone Pine, the Austrian Pine and others. Our native Cedars, Juniperus Virginiana, now have a dark, dingy appearance, which is particularly noticeable when the ground is covered with snow. Some very young trees of this species turn a deep purplish green. In very mild winters like the present the Irish Junipers retain their fresh color throughout the season, but they winter-kill badly from the excessive freezing and thawing of cold changeable weather.

Perhaps the most satisfactory of the conifers in our collection for winter color is the Douglas Spruce, Pseudotsuga taxifolia. It certainly is not surpassed by any other known to me for the clear, bright green of its foliage at this time. As grown here it is a compact tree, feathering out quite to the turf with graceful, downward sweep. Its foliage has a peculiar softness to the touch, and it succeeds best on exposed hillsides, where it does not discolor in the severest winter. The Spruces, too, as particularly desirable for winter effects are the Blue Spruce, Picea pungens, and a glaucous form of White Spruce, sold under the name of A. cœrulea. A variety of the Norway Spruce known as Conica has dark foliage and retains its color well, but is not so graceful in habit of growth as some other Spruces.

Hemlocks have a beauty all their own, and are never as charming as when their graceful branches are slightly bent under a light fall of snow. When Bittersweet vines are allowed to clamber at will over a clump of young Hemlocks the effect of the latter is much enhanced by the bright berries that mingle with their airy foliage. Cupressus Lawsoniana deserves mention as one of the most cheerful of evergreens as seen here in winter. It is hardy with us and is planted on the crest of a hill, a situation which suits it better than any other.

It may be that in other localities trees which grow dingy here hold their fresh color in the winter. I am only giving my personal observations.

Rose Brake, W. Va. *Danske Dandridge.*

Meetings of Societies.

Western New York Horticultural Society.

THE forty-first annual meeting of this society, which stands in the very front rank of organizations devoted to fruit-growing, was, as it usually is, largely attended, and several of the papers were notably instructive. It is said that the meeting did not move with the vim and snap which has characterized the proceedings of this body in years past, and those who have attended former gatherings can hardly imagine a dull hour at one of them. But fruit growers who are cheerful this year are made of sturdy stuff.

ADDRESS OF PRESIDENT BARRY.

After an historical sketch of some of the earlier societies in the country, Mr. Barry spoke of the exceptional weather and the exceptional crops of last season. In the first place, the winter was long and severe, remarkable for periods of extreme cold and heavy falls of snow. In January, while the ground was bare, a period of extreme cold came, in which large orchards of Duchess Pears suffered injury, many of the trees being found dead. Of other varieties of Pears the Anjous suffered least. President Barry does not know whether this injury to the trees will be permanent, but the question of the comparative hardiness of varieties is one which certainly is worth investigating. Snow lay on the ground till late in March and kept out the frost, and on the first of April nurserymen began to lift and pack trees. There was no delay from frost as usual, but there came a sudden and intense heat which prevailed during the middle of the month, with the thermometer in the eighties for several days. This made the packing and the shipping season the most hurried that has ever been known here, for by the first of May every tree was in full leaf, and the season for planting was practically passed. After this abnormal beginning a drought succeeded, with little rain, till the 20th of July, and this resulted in much loss to newly planted trees. The summer was hot, and, although comparatively dry, plants of all kinds which survived the early drought made a growth which surprised every one. For several years in western New York the orchards had produced but light crops, so that the trees were in a condition to yield heavily, and the apple crop was enormous. Every tree which was of bearing age was filled with handsome fruit. The result was surprising and discouraging, since only a small proportion of the fruit brought remunerative prices, most of it being taken to cider-mills or evaporating-houses, or utilized in other ways which gave small returns. Excessive quantities were exported to Europe, and instead of using extra care in selection on account of the exceptional crop, shippers hurried to pack without proper care in selecting, so that in many cases they received hardly enough to pay for their barrels. In this way the crop at home and abroad was practically lost.

President Barry advises that storage houses be provided where fruit can be kept till the time arrives when it can be advantageously sold. He added, as a practical point, that among the varieties which growers in the neighborhood of Rochester had an opportunity to test, Jonathan heads the list as a handsome, delicious and profitable apple. Its size, shape, color, flavor and shipping qualities are all that can desired, and it is strange that a variety possessing so many desirable characteristics should not have long ago received greater attention. An orchard of Jonathan apples is one of the most beautiful spectacles in nature, the tree being naturally graceful, the branches willowy, and the dark red apples against the bright foliage present a picture which never fails to excite admiration. The President also had a good word for the new plums raised by Luther Burbank, of California. He advised fruit growers to enlarge their spheres of work and to cultivate fruits for different seasons of the year so as to give employment to a regular force of laborers, who, on account of their proficiency, would become indispensable on the fruit farms. Crops should be anticipated and markets provided by the fruit grower, just as the manufacturer seeks and secures sales for his goods. Only by alertness in marketing, as well as care in growing—that is, by conducting fruit-growing on business principles the year through—can success be assured. Under existing conditions it will never answer to leave anything to chance.

NEW FACTS ABOUT THE CODLING MOTH.

Professor M. V. Slingerland, in speaking of recent work among Insect Foes of the Horticulturist, urged all fruit growers to coöperate with the stations, so that practical

horticulturists and economic entomologists could mutually aid each other in studying the habits of injurious insects. After a brief sketch of economical entomology in this country, which began practically with Dr. Harris' famous treatise, published in 1841, science has made great advances. But there are many things to learn. Even when we have discovered the proper remedies, there is sometimes uncertainty as to when and how they should be applied. Besides this, there is more than one fraudulent remedy on the market, as, for example, the inoculation humbug, which claims to render a tree safe from the attacks of many insects by a compound to be inserted in a hole bored into its trunk. Last year thousands of pounds of the American Soil Renewer and Insecticide were sold in Minnesota under a guarantee that it would kill every chinch bug on a field where it was sown, and so impregnate the soil that the insect would never again invade it. Chemists showed that the compound consisted of salt, land plaster and a little hellebore. The experiment stations have shown, too, that a patent Potato Bug Exterminator is entirely worthless, and that some really good insecticides are badly adulterated, so that the practical fruit grower must be alert to keep up with the latest investigations. We are learning something about it every day. For example, the arsenate of lead brought out by the Gypsy Moth Commission in Massachusetts as Gypsine is a promising remedy, so is an arsenite of copper known as Shields' Green and the arsenite of lead. Whale-oil soap seems to be destined to come into general use as an effective remedy for the dreaded San José scale, and with the improved machinery worked by horse power or steam engines there is every promise that it will be possible to wage more successful war against the insect enemies of crops in the future than has ever been waged in the past. Those who know most about insects and their methods of life will be most successful in destroying, and we have much to learn of the habits of our most common ones. We do not know, for example, how long the June bug lives as a white grub, nor the click beetle as a wireworm. We do not know where or when the click beetle lays her eggs, and no one has yet reared a June bug or a click beetle from the egg to the adult insect. Mr. Slingerland has been making a special study of the apple worm, or codling moth, and he seems to have thrown light upon some portion of the life and habits of this insect which have hitherto been obscure. It has been known that a spraying of Paris green, if applied to Apple-trees just after the blossoms fall, will kill the caterpillars; but the explanation as to how this poison killed the worm has been obscure, since no one seems to have made any definite observation of the eggs and the newly hatched caterpillars. The text-books say that "the moth lays its eggs singly in the maturing blossoms of the apple just as the petals fall. As soon as the caterpillar hatches it burrows into the apple." All writers tell glibly where this egg is laid, but only one, so far as Mr. Slingerland knows, has ever seen the egg, and this is remarkable, since the literature of the codling moth began 170 years ago and is as voluminous as that of any other injurious insect. Nevertheless, a bulletin of the Oregon Experiment Station published in 1893 contains the first and only picture of the egg yet published. The author of this bulletin, Mr. Washburn, thought that these eggs were laid anywhere it happened on the skin of the fruit, and they were laid somewhat later than was supposed. Later writers have overlooked these important observations, and Mr. Washburn himself did not watch the young caterpillar after emerging from the egg, and thus left it uncertain as to how he gets his deadly dose of Paris green. Mr. Slingerland has found that the greater part of the eggs are not laid until about a week after the blossoms have fallen and when the apples are as big as hickory nuts. The calyx lobes on the young fruit are by this time drawn tightly together, so that it would be a hard matter for the moth to insert her egg in the cup. In fact, the ovipositor is only adapted to laying eggs on the surface of the fruit. These round, thin, scale-like, translucent eggs, not quite as big as a pin-head, are glued to the apple skin, with little choice as to their location on the fruit. It is a week before they hatch, and therefore it is ten days or two weeks after the blossoms fall before the caterpillar begins operations. Now, if the usual advice for spraying has been followed, the first spraying is made a week before the eggs are laid, and the second some days before the worms appear. How then does the poison kill the worm? A study of the growing fruit shows that when the petals fall the remaining calyx lobes are broadly spread out like a saucer and many minute particles of Paris green are caught in it, but as two weeks must intervene before the little caterpillar begins to eat, much of the poison would be washed out by rain and the first spraying would be useless. Nature prevents this, however, by tightening up the calyx lobes at their tips as the apple grows, so that within a week after the blossoms fall the cup has its deadly dose protected by a cover formed of these converging lobes. How then does the worm, when he begins to eat a week or more later, get hold of the poison? Professor Slingerland watched one of the little creatures as he came out of his egg and wandered over the surface of the apple for two or three hours, eating nothing, but simply exploring until it had worked its little body through between two of these calyx lobes and disappeared within the cup. Future field work confirmed this observation and showed that the worms fed about the cup for a day or more before they go deeper into the fruit. Apples were picked from a tree which had been sprayed just after the petals fell, and an analysis showed that there was arsenic in the covered cup of the calyx. As eight-tenths of the first brood of worms begin feeding in the manner described it is believed that this first spraying just after the blossoms have fallen is of the utmost importance and will kill more caterpillars than several later applications.

After detailing this bit of investigation and discovery, Professor Slingerland had something to say about the Peach-borer, showing that washes were comparative failures, and that dendrolene, though it gave some promise as a preventive, should be carefully used. He hopes that there will be some easier method found of combating the borer than by digging it out, but as yet this is the surest and most practicable remedy to be commended. A thorough digging in the latter part of June, when the worms are three-fourths grown, would be more effective than a spring and fall examination together.

Recent Publications.

Vegetable Gardening. By Samuel B. Green, Professor of Agriculture in the University of Minnesota. Webb Publishing Co., St. Paul.

This is a compact little manual of 225 pages which was prepared originally for use in the School of Agriculture connected with the University of Minnesota, and it treats of the growing of vegetables both for home use and for market. It was written for the latitude of southern Minnesota, but a little judgment will enable any one to adapt its directions to locations farther south and north. About half the book is taken up with the usual description of the various plants cultivated in kitchen gardens, together with good instructions for raising them. Like most other manuals, it could be improved by the statement of some general principles as the basis of special treatment, so that the cultural directions would have rather less of the wooden "rule of thumb" quality. A handbook would have more vitality and its teachings would impress themselves more strongly upon students if it contained such data, with the deductions from them as were presented, for example, in an article on Tomatoes, by Professor Tracy, in the last volume of this journal (vol. ix., p. 37). When an intelligent reader once apprehends that the constitution and habit of the Tomato clearly make it necessary to surround the plant constantly with certain conditions, he will never forget the details essential to its most profitable cultivation. Similar considerations drawn from a study of the development and character of other garden plants could be stated with great advantage, so as to offer readers for their contemplation and study some of the fundamental reasons for the different methods of treating different crops. Directions given to be memorized are easily forgotten; principles once learned are a possession forever.

The rules for cultural practice, however, are all trustworthy, and embody results of the latest studies at the Agricultural Experiment Stations and elsewhere. Besides these the book offers a good practical chapter on injurious insects and the methods of fighting them, some excellent notes on glass structures, a compact treatise on tillage and fertilizing, with tables of composition giving the amount of food elements required by different crops, the amount of these elements contained in various farm manures and commercial fertilizers, and much other useful matter written in a straightforward, sensible way. It is helpfully illustrated and has a fairly good index, but no table of contents.

Notes.

Almeria grapes, from Spain, may still be had for twenty-five cents a pound, and four-pound baskets of Catawbas, from western New York, sell for the same sum. Handsome bunches of large Gros Colman grapes, from England, realize $1.75 to $2.00 a pound.

Only thirty barrels of cranberries reached this city during last week, while 64,000 barrels have come since the beginning of September, besides nearly 35,000 crates. Fancy grades from Cape Cod sell at wholesale for $5.50, and the best from New Jersey for $4.00 a barrel.

An important announcement by the MacMillan Company of this city is the publication of an encyclopedia of American Horticulture, in three volumes, dated 1900. Professor Bailey has undertaken the editorial oversight of the work, which will contain signed articles by specialists, arranged alphabetically, on all subjects relating to the cultivation of plants out-of-doors and under glass.

A correspondent of *The Gardeners' Chronicle* from Cape Town, South Africa, writes of a new yellow-spathed Richardia, which seems to be quite different from either R. Elliottiana or R. Pentlandi, and in many respects an improvement on both of them. The flowers are a very bright shade of yellow, the spathes are large and freely borne, the plant is bold, vigorous and stocky in habit, with broad leaves set on rather short petioles and regularly spotted over the entire surface of the blade. The plant is said to have been found in a place remote from the habitat of the yellow Callas already introduced.

Mr. John C. Lewis writes to *Forest Leaves* of a Buttonwood-tree which has grown from a sprout planted by William Rodman about the year 1745, some two miles from the Croydon Station of the Pennsylvania Railroad, at a place called Flushing, in Bucks County, Pennsylvania. It seems as vigorous as it was a century ago, and is still growing and bids fair to keep on growing through the twentieth century. At two feet from the ground the tree is twenty-nine feet six inches in girth, and at six feet from the ground it measures twenty-eight feet four inches. If there are larger trees than this east of the Rocky Mountains we should like to hear of them.

According to Mr. Fernow, in an address before the New Jersey Forestry Association, held at Trenton on the 5th of January, the people of New Jersey are sending out of that state at least twelve million dollars a year for lumber, two or three millions of which could be expended at home if the soil fit for these crops only was doing its duty. The greater portion of this area is almost totally unproductive, and its capacity for production is decreasing every year by recurring fires. One-third of it is in the northern or hilly part of the state, and the remainder in the sand-barrens so situated near places of active consumption that, with only indifferent care, it would yield a hundred million cubic feet of wood every year forever, or an annual stumpage value of at least one million dollars.

While only a moderate quantity of fresh vegetables arrived from Florida last week, there was no real scarcity. The crops north of Winter Haven are said to have been seriously injured by the recent frosts, but south of Tampa little damage was done. Some good lettuce has come from that state during the past ten days, with new beets, cabbage, eggplants and cauliflower. Many of the tomatoes have been of poor color, but good ones could be bought as low as twenty cents a pound. String-beans cost $1.00 a half-peck, and peas $1.00 to $1.50. Escarolle, from New Orleans, costs ten cents a head, and that from France commands twenty to twenty-five cents. Okra and peppers come from Havana. Mushrooms continue plentiful at fifty cents a pound. Oyster-plant, turnips and other root crops are seen in large variety in local displays of vegetables.

Messrs. J. C. Houghton & Co., importers of apples in Liverpool, under date of January 30th, state that the favorable change of the previous week in prices for American apples in England has continued, and that there is a further general advance of one to two shillings a barrel. At that time Baldwins of choice quality, tightly packed and sound, sold at wholesale at from $2.88 to $4.08; Greenings, from $2.46 to $3.54; Northern Spies, $2.52 to $3.84, and Golden Russets, $3.54 to $5.04. "Slack" barrels realized from one to three shillings less than these rates. Other varieties now exported from this country are Ben Davis, Phœnix and Seek-no-further. Most of these apples were forwarded from Maine and Canada, and the few from New York are reported as having been in poor condition, Baldwins bringing but $1.68 to $3.00, and Golden Russets $3.36 to $3.48. In Liverpool alone 1,235,925 barrels of American apples were received this season up to January 28th as against 329,126 barrels for the corresponding period a year ago.

Dr. John Marshall, of Philadelphia, who has his summer residence in Douglassville, Pennsylvania, came home after a short absence and found that a telegraph company had entered his grounds against the protests of the persons in charge, and cut down sixty or seventy trees and mutilated others, under the pretext of clearing a space for operating a telegraph line. Suit was brought in the Bucks County Court, and the men who committed the misdemeanor were sentenced to pay a fine of $50.00 each, and in default of payment to be imprisoned for fifty days. An appeal was taken to the Superior Court of Pennsylvania, and we are glad to learn from *Forest Leaves* that the finding of the lower court was upheld. Beyond doubt, the owner of the trees has also the right under this decision to collect damages by civil suits in addition to the penalties imposed for the misdemeanor.

A correspondent to the London *Garden* says that Beet roots are often spoiled in cooking—that is, the most highly colored of them lose their beauty and the richest of them lose their flavor. In the first place they may be injured in gathering, for if the tops are cut off too close to the crown the root bleeds and this is a loss, and when sent to the kitchen in good condition the knife is too severely used in trimming off the ends before they are boiled. Besides this, they are often pricked with the fork to prove that they are sufficiently soft, and in this way the juice escapes into the water to the detriment of both flavor and color. Experienced cooks ought to know how long roots of a certain size require for their cooking, and they should never be interfered with from the time they are placed in the water until they are finally removed, when they should be peeled and prepared for the table.

The Trustees of the Veitch Memorial Fund have selected for decoration with their medal this year the following persons for distinguished service to horticulture: Mr. Norman C. Cookson, for long and successful experiments in hybridizing Orchids; Mr. Martin R. Smith, an eminent amateur, for raising choice varieties of Carnations, especially those in the Malmaison section, and others adapted for culture in the open border on account of their hardiness and beauty; Professor L. H. Bailey, of Cornell University, in recognition of the value of his lectures and writings as a help in placing the cultivation of plants on a scientific basis, and his efforts to promote the extension of horticultural education, and for his efforts to improve economic plants; M. Charles Naudin, of Antibes, for experiments which have advanced the theory and practice of hybridization, and for his success in introducing plants of great economic value; and Herr Max Leichtlin, of Baden-Baden, for his eminent services in introducing to horticulture a large number of interesting plants, and his sagacity and skill in their cultivation.

In writing to *The American Agriculturist* on Winter Work Against Insects, Professor J. B. Smith calls attention to the fact that many borers pass the winter as larvæ either in dead or dying twigs that remain on the trees or have fallen to the ground. All dead and dying wood should, therefore, be removed from orchards in the winter. Almost every dead or dying branch contains borers in some stage, and these should find their way to the brush-heap or into the stove before spring. If they are put on the brush-heap they should by no means be allowed to lie till the following summer, but ought to be burned before the first of April. Careful inspection at this season may show on Apple-trees which have been infested with plant lice many very small, shining, black, oval eggs close to the buds near the tips of the twigs. It is hard to kill these eggs, but if there is any trimming to be done these twigs may be cut off and burned before spring, and this will lessen the insects for next year. The egg belts of the tent caterpillar are more readily seen, and it pays certainly to cut them from medium-sized trees. Burning over infested land in winter will destroy the eggs of many grasshoppers and other insects which lay their eggs in the leafy tissue or on the stems of grass or reeds. Some insects which infest shade-trees, like the bagworm and the vaporer moth, hibernate in the egg state. The bagworm can be easily cut off of the tree, especially the Arbor Vitæ, which is very subject to their injuries, while in cities and towns the egg masses of the vaporer moth are found on fences, tree-boxes and any other place where a little shelter is afforded, and since each mass contains more than a hundred eggs, every one gathered and burned helps to limit the injury from caterpillars the next year.